

LAMPIRAN

Lampiran 1 Proses pengambilan data pertamax murni.



Lampiran 2 Proses pencampuran bahan bakar menggunakan mixer



Lampiran 3 Proses memposisikan motor pada *dynotest*.



Lampiran 4 Proses input data jenis motor dll.



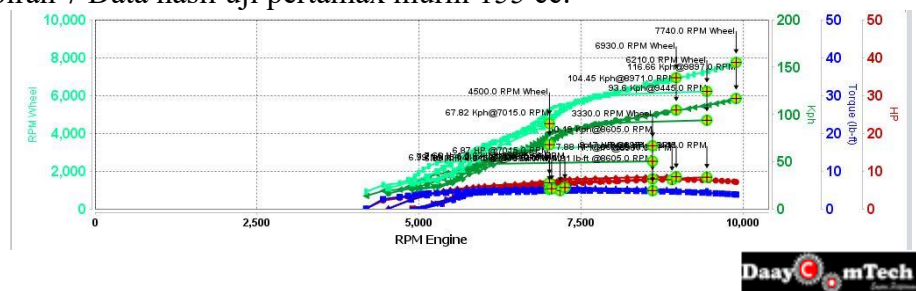
Lampiran 5 Proses pemasangan kabel sensor dynotest ke busi dan besi motor.



Lampiran 6 *Buret* digunakan sebagai alat untuk menampung bahan bakar.



Lampiran 7 Data hasil uji pertamax murni 155 cc.



Dyno Test Result

RPM_Wheel_N-MAX_Super Admin_20-07-2025 09:33:23
 RPM_Wheel_N-MAX_Super Admin_20-07-2025 09:34:32
 RPM_Wheel_N-MAX_Super Admin_20-07-2025 08:53:41
 Kph_N-MAX_Super Admin_Live Kph_N-MAX_Super Admin_20-07-2025 09:29:57
 Kph_N-MAX_Super Admin_20-07-2025 09:30:38
 Kph_N-MAX_Super Admin_20-07-2025 09:33:23
 Kph_N-MAX_Super Admin_20-07-2025 09:34:32
 Kph_N-MAX_Super Admin_20-07-2025 08:53:41
 Torque_N-MAX_Super Admin_Live
 Torque_N-MAX_Super Admin_20-07-2025 09:29:57
 Torque_N-MAX_Super Admin_20-07-2025 09:30:38
 Torque_N-MAX_Super Admin_20-07-2025 09:33:23
 Torque_N-MAX_Super Admin_20-07-2025 09:34:32
 Torque_N-MAX_Super Admin_20-07-2025 08:53:41 HP_N-MAX_Super Admin_Live
 HP_Engine_N-MAX_Super Admin_20-07-2025 09:29:57
 HP_Engine_N-MAX_Super Admin_20-07-2025 09:30:38
 HP_Engine_N-MAX_Super Admin_20-07-2025 09:33:23
 HP_Engine_N-MAX_Super Admin_20-07-2025 09:34:32
 HP_Engine_N-MAX_Super Admin_20-07-2025 08:53:41

Date&T ime	Engine	Owner	Max RPM Wheel	Max Kph	Max RPM Engine	Max Torque	Max HP	Max AFR
20-07- 2025 09:29:5 7	N-MAX	Super Admin	3330	50.19@ 8605 RPM	8605	6.54 Nm4.81 lb- ft@860 5 RPM	7.88 HP@86 05 RPM	10@86 05 RPM
20-07- 2025 09:30:3 8	N-MAX	Super Admin	7740	116.66 @9897 RPM	9897	6.53 Nm4.8 lb- ft@740 7 RPM	7.7 HP@89 07 RPM	10@89 07 RPM
20-07- 2025 09:33:2 3	N-MAX	Super Admin	4500	67.82@ 7015 RPM	7015	6.99 Nm5.14 lb- ft@701 5 RPM	6.87 HP@70 15 RPM	10@70 15 RPM
20-07- 2025 09:34:3 2	N-MAX	Super Admin	6210	93.6@9 445 RPM	9445	7.21 Nm5.3 lb- ft@704 8 RPM	8.34 HP@94 45 RPM	10@94 45 RPM

20-07-2025 08:53:41	N-MAX	Super Admin	6930	104.45 @8971 RPM	8971	7.66 Nm5.63 lb-ft@725 3 RPM	8.47 HP@8971 RPM	10@8971 RPM
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20-07-2025 09:29:57-N-MAX-Super Admin-Max Torque :6.54 Nm4.81 lb-ft@8605 RPM-Max HP: 7.88 HP@8605 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1350.00	20.35	4972.00	0.14	0.13	10.00
1530.00	23.06	5231.00	1.43	1.42	10.00
1800.00	27.13	5440.00	2.44	2.52	10.00
2070.00	31.20	5554.00	3.16	3.34	10.00
2340.00	35.27	5653.00	3.70	3.98	10.00
2610.00	39.34	5760.00	4.12	4.51	10.00
2700.00	40.69	5873.00	4.34	4.85	10.00
2970.00	44.76	5958.00	4.54	5.16	10.00
3150.00	47.48	6091.00	4.70	5.45	10.00
3330.00	50.19	8605.00	4.81	7.88	10.00

20-07-2025 09:30:38-N-MAX-Super Admin-Max Torque :6.53 Nm4.8 lb-ft@7407 RPM-Max HP: 7.7 HP@8907 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
900.00	13.56	4184.00	0.03	0.02	10.00
1260.00	18.99	4446.00	2.57	2.18	10.00
1350.00	20.35	4702.00	3.14	2.81	10.00
1530.00	23.06	4831.00	3.47	3.19	10.00
1710.00	25.77	4937.00	3.70	3.47	10.00
1890.00	28.49	4992.00	3.86	3.67	10.00
2070.00	31.20	5065.00	3.99	3.84	10.00
2250.00	33.91	5151.00	4.09	4.01	10.00
2430.00	36.62	5275.00	4.17	4.19	10.00
2520.00	37.98	5420.00	4.21	4.35	10.00
2700.00	40.69	5591.00	4.25	4.52	10.00
2880.00	43.41	5732.00	4.29	4.68	10.00
3060.00	46.12	5855.00	4.32	4.82	10.00
3240.00	48.83	5985.00	4.35	4.96	10.00
3420.00	51.55	6096.00	4.38	5.08	10.00
3600.00	54.26	6270.00	4.40	5.26	10.00
3780.00	56.97	6378.00	4.43	5.38	10.00
3960.00	59.69	6531.00	4.45	5.53	10.00
4140.00	62.40	6663.00	4.47	5.67	10.00
4320.00	65.11	6781.00	4.49	5.79	10.00
4500.00	67.82	6877.00	4.74	6.21	10.00
4680.00	70.54	6983.00	4.73	6.29	10.00
4860.00	73.25	7067.00	4.76	6.41	10.00
4950.00	74.61	7112.00	4.78	6.48	10.00
5130.00	77.32	7178.00	4.80	6.55	10.00
5310.00	80.03	7251.00	4.80	6.63	10.00



5400.00	81.39	7333.00	4.80	6.71	10.00
5580.00	84.10	7407.00	4.80	6.77	10.00
5670.00	85.46	7535.00	4.79	6.87	10.00
5850.00	88.17	7637.00	4.79	6.97	10.00
5940.00	89.53	7796.00	4.79	7.11	10.00
6030.00	90.88	7934.00	4.78	7.22	10.00
6120.00	92.24	8077.00	4.76	7.32	10.00
6300.00	94.95	8219.00	4.74	7.42	10.00
6390.00	96.31	8354.00	4.71	7.50	10.00
6480.00	97.67	8481.00	4.68	7.56	10.00
6570.00	99.02	8630.00	4.64	7.62	10.00
6750.00	101.74	8756.00	4.59	7.66	10.00
6840.00	103.09	8907.00	4.54	7.70	10.00
6930.00	104.45	9009.00	4.49	7.69	10.00
7020.00	105.81	9154.00	4.41	7.68	10.00
7110.00	107.16	9247.00	4.34	7.64	10.00
7200.00	108.52	9375.00	4.26	7.60	10.00
7290.00	109.87	9472.00	4.18	7.54	10.00
7380.00	111.23	9581.00	4.10	7.47	10.00
7470.00	112.59	9677.00	4.01	7.38	10.00
7560.00	113.94	9768.00	3.92	7.30	10.00
7650.00	115.30	9865.00	3.83	7.20	10.00
7740.00	116.66	9897.00	3.75	7.07	10.00

20-07-2025 09:33:23-N-MAX-Super Admin-Max Torque :6.99 Nm5.14 lb-ft@7015 RPM-Max HP:
6.87 HP@7015 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1350.00	20.35	4900.00	0.05	0.04	10.00
1530.00	23.06	5288.00	1.31	1.32	10.00
1800.00	27.13	5518.00	2.30	2.41	10.00
2070.00	31.20	5675.00	3.00	3.24	10.00
2430.00	36.62	5778.00	3.63	3.99	10.00
2610.00	39.34	5923.00	4.02	4.53	10.00
2880.00	43.41	6022.00	4.33	4.97	10.00
3060.00	46.12	6146.00	4.55	5.32	10.00
3330.00	50.19	6246.00	4.74	5.63	10.00
3510.00	52.90	6385.00	4.88	5.93	10.00
4140.00	62.40	6799.00	4.99	6.46	10.00
4320.00	65.11	6909.00	5.07	6.68	10.00
4500.00	67.82	7015.00	5.14	6.87	10.00

20-07-2025 09:34:32-N-MAX-Super Admin-Max Torque :7.21 Nm5.3 lb-ft@7048 RPM-Max HP: 8.34
HP@9445 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1440.00	21.70	5051.00	0.04	0.04	10.00
1620.00	24.42	5352.00	1.31	1.33	10.00
1890.00	28.49	5528.00	2.29	2.41	10.00
2160.00	32.56	5621.00	3.00	3.21	10.00



2520.00	37.98	5704.00	3.63	3.94	10.00
2700.00	40.69	5810.00	4.02	4.44	10.00
2880.00	43.41	5883.00	4.28	4.79	10.00
3150.00	47.48	5950.00	4.50	5.10	10.00
3240.00	48.83	6016.00	4.63	5.30	10.00
3420.00	51.55	6111.00	4.73	5.50	10.00
3780.00	56.97	6334.00	4.81	5.80	10.00
3870.00	58.33	6415.00	4.85	5.92	10.00
4050.00	61.04	6524.00	4.88	6.07	10.00
4230.00	63.75	6618.00	4.91	6.19	10.00
4320.00	65.11	6696.00	4.93	6.28	10.00
4500.00	67.82	6761.00	4.94	6.36	10.00
4590.00	69.18	6808.00	4.94	6.40	10.00
4770.00	71.89	6868.00	4.94	6.46	10.00
4860.00	73.25	6915.00	4.93	6.50	10.00
4950.00	74.61	6952.00	4.92	6.52	10.00
5130.00	77.32	6988.00	5.17	6.88	10.00
5220.00	78.68	7004.00	5.28	7.05	10.00
5310.00	80.03	7048.00	5.30	7.11	10.00
5400.00	81.39	7098.00	5.26	7.11	10.00
5490.00	82.75	7183.00	5.15	7.05	10.00
5670.00	85.46	7457.00	5.05	7.17	10.00
5760.00	86.81	7635.00	4.95	7.20	10.00
5940.00	89.53	7816.00	4.83	7.19	10.00
6030.00	90.88	8006.00	4.74	7.22	10.00
6210.00	93.60	9445.00	4.64	8.34	10.00

20-07-2025 08:53:41-N-MAX-Super Admin-Max Torque :7.66 Nm5.63 lb-ft@7253 RPM-Max HP:
8.47 HP@8971 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1080.00	16.28	4529.00	0.05	0.04	10.00
1440.00	21.70	4881.00	2.50	2.33	10.00
1710.00	25.77	5126.00	3.59	3.50	10.00
1980.00	29.84	5285.00	4.24	4.26	10.00
2160.00	32.56	5380.00	4.57	4.68	10.00
2340.00	35.27	5483.00	4.77	4.98	10.00
2610.00	39.34	5593.00	4.94	5.27	10.00
2790.00	42.05	5737.00	5.06	5.53	10.00
2970.00	44.76	5837.00	5.14	5.71	10.00
3150.00	47.48	5923.00	5.19	5.85	10.00
3330.00	50.19	6014.00	5.23	5.99	10.00
3510.00	52.90	6158.00	5.25	6.16	10.00
3690.00	55.62	6331.00	5.27	6.36	10.00
3870.00	58.33	6482.00	5.29	6.52	10.00
4050.00	61.04	6621.00	5.29	6.68	10.00
4230.00	63.75	6744.00	5.30	6.81	10.00
4500.00	67.82	6868.00	5.31	6.95	10.00
4680.00	70.54	6962.00	5.32	7.06	10.00



4860.00	73.25	7062.00	5.33	7.17	10.00
5040.00	75.96	7132.00	5.33	7.24	10.00
5220.00	78.68	7202.00	5.61	7.70	10.00
5310.00	80.03	7253.00	5.63	7.78	10.00
5490.00	82.75	7326.00	5.60	7.81	10.00
5670.00	85.46	7444.00	5.55	7.86	10.00
5760.00	86.81	7570.00	5.50	7.92	10.00
5940.00	89.53	7723.00	5.45	8.02	10.00
6030.00	90.88	7888.00	5.39	8.09	10.00
6210.00	93.60	8038.00	5.33	8.16	10.00
6300.00	94.95	8214.00	5.27	8.24	10.00
6390.00	96.31	8365.00	5.21	8.30	10.00
6570.00	99.02	8500.00	5.15	8.33	10.00
6660.00	100.38	8668.00	5.09	8.40	10.00
6750.00	101.74	8826.00	5.02	8.44	10.00
6930.00	104.45	8971.00	4.96	8.47	10.00



20-07-2025 11:16:58	N-MAX	Super Admin	4500	67.82@9566 RPM	9566	7.56 Nm5.56 lb-ft@9566 RPM	10.12 HP@9566 RPM	10@9566 RPM
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20-07-2025 11:16:38-N-MAX-Super Admin-Max Torque :8.05 Nm5.92 lb-ft@8907 RPM-Max HP: 10.04 HP@8907 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1170.00	17.63	4828.00	0.06	0.06	10.00
1530.00	23.06	5160.00	2.51	2.47	10.00
1800.00	27.13	5385.00	3.60	3.69	10.00
2070.00	31.20	5549.00	4.24	4.48	10.00
2250.00	33.91	5748.00	4.58	5.01	10.00
2520.00	37.98	5910.00	4.84	5.45	10.00
2790.00	42.05	6059.00	5.06	5.83	10.00
2970.00	44.76	6240.00	5.20	6.17	10.00
3240.00	48.83	6341.00	5.32	6.42	10.00
3420.00	51.55	6473.00	5.40	6.66	10.00
3600.00	54.26	6621.00	5.46	6.89	10.00
3780.00	56.97	6779.00	5.50	7.10	10.00
4050.00	61.04	6906.00	5.55	7.29	10.00
4230.00	63.75	7015.00	5.58	7.45	10.00
4410.00	66.47	7129.00	5.60	7.60	10.00
4590.00	69.18	7241.00	5.62	7.74	10.00
4770.00	71.89	7369.00	5.63	7.90	10.00
4950.00	74.61	7479.00	5.63	8.02	10.00
5130.00	77.32	7612.00	5.64	8.17	10.00
5220.00	78.68	7757.00	5.63	8.32	10.00
5400.00	81.39	8907.00	5.92	10.04	10.00

20-07-2025 11:15:30-N-MAX-Super Admin-Max Torque :8.47 Nm6.23 lb-ft@8876 RPM-Max HP: 8.15 HP@8876 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1350.00	20.35	5391.00	0.06	0.06	10.00
1710.00	25.77	5736.00	2.51	2.74	10.00
2070.00	31.20	5954.00	3.87	4.39	10.00
2340.00	35.27	6142.00	4.60	5.38	10.00
2700.00	40.69	6274.00	5.16	6.16	10.00
2970.00	44.76	6397.00	5.53	6.74	10.00
3240.00	48.83	6501.00	5.80	7.18	10.00
3510.00	52.90	6612.00	6.00	7.55	10.00
3690.00	55.62	6730.00	6.12	7.85	10.00
3960.00	59.69	6876.00	6.23	8.15	10.00

20-07-2025 11:17:40-N-MAX-Super Admin-Max Torque :8.31 Nm6.11 lb-ft@9468 RPM-Max HP: 8.69 HP@9468 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1530.00	23.06	5581.00	0.03	0.04	10.00



1890.00	28.49	5793.00	2.49	2.75	10.00
2250.00	33.91	5945.00	3.85	4.36	10.00
2520.00	37.98	6066.00	4.59	5.30	10.00
2790.00	42.05	6257.00	5.05	6.02	10.00
3060.00	46.12	6369.00	5.37	6.51	10.00
3330.00	50.19	6486.00	5.61	6.93	10.00
3510.00	52.90	6626.00	5.76	7.26	10.00
3780.00	56.97	6758.00	5.88	7.56	10.00
3960.00	59.69	6864.00	5.96	7.78	10.00
4230.00	63.75	7006.00	6.03	8.04	10.00
4320.00	65.11	7122.00	6.05	8.21	10.00
4590.00	79.18	7221.00	6.08	8.36	10.00
4770.00	81.89	7345.00	6.10	8.53	10.00
4950.00	94.61	7468.00	6.11	8.69	10.00

20-07-2025 10:56:37-N-MAX-Super Admin-Max Torque :8.47 Nm6.23 lb-ft@8036 RPM-Max HP:
9.53 HP@8036 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1710.00	25.77	5815.00	0.06	0.07	10.00
1890.00	28.49	6071.00	1.32	1.53	10.00
2340.00	35.27	6261.00	2.87	3.42	10.00
2610.00	39.34	6406.00	3.75	4.58	10.00
2970.00	44.76	6540.00	4.43	5.52	10.00
3240.00	48.83	6683.00	4.90	6.24	10.00
3510.00	52.90	6819.00	5.24	6.81	10.00
3780.00	56.97	6950.00	5.51	7.29	10.00
4050.00	61.04	7072.00	5.71	7.70	10.00
4230.00	63.75	7228.00	5.86	8.06	10.00
4500.00	67.82	7329.00	5.98	8.35	10.00
4680.00	70.54	7409.00	6.07	8.56	10.00
4860.00	73.25	7549.00	6.13	8.81	10.00
5040.00	75.96	7702.00	6.17	9.05	10.00
5220.00	78.68	7843.00	6.20	9.27	10.00
5400.00	81.39	8036.00	6.23	9.53	10.00

20-07-2025 11:16:58-N-MAX-Super Admin-Max Torque :7.56 Nm5.56 lb-ft@9566 RPM-Max HP:
10.12 HP@9566 RPM

RPM Wheel	Kph	RPM Engine	Torque	HP	AFR
1350.00	20.35	4998.00	0.03	0.03	10.00
1620.00	24.42	5351.00	1.87	1.91	10.00
1980.00	29.84	5598.00	3.17	3.38	10.00
2250.00	33.91	5744.00	3.92	4.29	10.00
2520.00	37.98	5886.00	4.42	4.95	10.00
2700.00	40.69	6031.00	4.71	5.41	10.00
2970.00	44.76	6165.00	4.94	5.80	10.00
3240.00	48.83	6289.00	5.13	6.15	10.00
3420.00	51.55	6397.00	5.26	6.41	10.00
3600.00	54.26	6517.00	5.35	6.64	10.00

3780.00	56.97	6629.00	5.42	6.84	10.00
4050.00	61.04	6746.00	5.48	7.04	10.00
4140.00	62.40	6836.00	5.51	7.17	10.00
4410.00	66.47	6936.00	5.54	7.32	10.00
4500.00	67.82	9566.00	5.56	10.12	10.00





POLITEKNIK HARAPAN BERSAMA
The True Vocational Campus

PENGAJUAN KESEDIAAN PEMBIMBING DAN JUDUL TUGAS AKHIR

Kami yang bertanda tangan dibawah ini :

No	NIDN/NUPN	Nama (lengkap dengan gelar)	Keterangan
1	0630069202	Firman Lukman Sanjaya, M.T	Pembimbing I
2	0623127906	Nur Aidi Arianto, M.T	Pembimbing II

Menyatakan **BERSEDIA** / ~~TIDAK BERSEDIA~~ membimbing Tugas Akhir mahasiswa berikut :

NAMA : Moh Syaiful Irfany
NIM : 22021013
Produk Tugas Akhir : Dynotest
Judul Tugas Akhir : UJI TORSI DAN DAYA MESIN BENSIN 155 CC BERBAHAN BAKAR
CAMPURAN PERTAMAX DAN BUTANOL 10 % MENGGUNAKAN
DYNOTEST

Sesuai dengan waktu yang telah disepakati, Tugas Akhir dilaksanakan mulai bulan Maret tahun 2025 sampai dengan pelaksanaan Sidang Tugas Akhir bulan Juli tahun 2025.

Tegal, 04 Maret 2025

Pembimbing 1,

Firman Lukman Sanjaya, M.T
NIDN. 0630069202

Pembimbing 2,

Nur Aidi Arianto, M.T
NIDN. 0623127906

Ketua Program Studi
Diploma III Teknik Mesin

M. Khumaidi Usman, M.Eng
NIPY. 01.015.263

LEMBAR BIMBINGAN TUGAS AKHIR



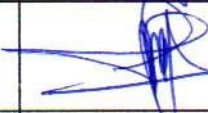
Nama Mahasiswa	: Moh Syaiful Irfany
Nomor Induk Mahasiswa	: 22021013
Nama Pembimbing Tugas Akhir	: Firman Lukman Sanjaya, M.T
Judul Laporan Tugas Akhir	: Uji Torsi Dan Daya Mesin Bensin 155 cc Berbahan Bakar Campuran Pertamina Dan Butanol 10%

PROGRAM STUDI DIII TEKNIK MESIN

POLITEKNIK HARAPAN BERSAMA

TEGAL 2025

Rekap Pembimbingan Penyusunan Laporan Tugas Akhir

PEMBIMBING I				
		Nama	Firman Lukman Sanjaya, M.T	
		NIDN/NUPN	0630069202	
No	Hari	Tanggal	Uraian	Tanda Tangan
1	Senin	21/04 2025	Pembagian Judul tugas Akhir	
2	Selasa	22/04 2025	BAB I (latar belakang, rumus masalah, batasan masalah, tujuan dan manfaat)	
3	Kamis	24/04 2025	Revisi BAB I (penulisan SPK, penggunaan sitasi dan penulisan kanan kiri)	
4	Selasa	6/05 2025	BAB II landasan teori	
5	Senin	19/05 2025	Revisi BAB II (memambah teori dan sitasi gambar)	
6	Kamis	19/06 2025	BAB III (membuat alur penelitian dan proses pengujian)	
7	Senin	25/06 2025	Revisi BAB III (melengkapi foto saat pengujian)	
8	Selasa	7/07 2025	BAB IV & V (pembahasan Torsi dan Daya serta kesimpulan & saran)	
9	Rabu	15/07 2025	Perambatkan Jurnal dan Abstrak	
10			Ass Lap	

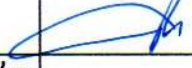
LEMBAR BIMBINGAN TUGAS AKHIR



Nama Mahasiswa	: Moh Syaiful Irfany
Nomor Induk Mahasiswa	: 22021013
Nama Pembimbing Tugas Akhir	: Nur Aidi Ariyanto, M.T
Judul Laporan Tugas Akhir	: Uji Torsi Dan Daya Mesin Bensin 155 cc Berbahan Bakar Campuran Pertamina Dan Butanol 10%

PROGRAM STUDI DIII TEKNIK MESIN
POLITEKNIK HARAPAN BERSAMA
TEGAL 2025

Rekap Pembimbingan Penyusunan Laporan Tugas Akhir

PEMBIMBING II		Nama	Nur Aidi Ariyanto, M.T		
		NIDN/NUPN	0623127906		
No	Hari	Tanggal	Uraian		Tanda Tangan
1	Senin	21/04 2025	Pengajuan Judul Tugas Akhir		
2	Senin	5/05 2025	BAB I (penulisan SPok, Sitasi I		
3	Selasa	6/05 2025	Revisi BAB I (penulisan kata kanan kiri, sitasi I)		
4	Kamis	15/05 2025	BAB II (landasan teori, gambar)		
5	Senin	2/06 2025	Revisi BAB II (penempatan gambar sitasi gambar)		
6	Selasa	10/06 2025	BAB III (metode penelitian, alat dan bahan, proses pengujian)		
7	Jum'at	13/06 2025	Revisi BAB III (spesifikasi motor, dynotest bahan bakar)		
8	Selasa	24/06 2025	BAB IV dan V (Hasil pengujian dan kesimpulan, saran)		
9	Rabu	25/06 2025	Revisi IV dan V (grafik dan tabel serta penulisan kata asing, SPok)		
10			Aca laporan TA		